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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,122	12/30/2003	Richard L. Boyd	NOR-014CP4 and 286336.153	3280

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EXAMINER	
MONTANARI, DAVID A	

ART UNIT	PAPER NUMBER
1632	

NOTIFICATION DATE	DELIVERY MODE
03/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/749,122	BOYD, RICHARD L.	
	Examiner	Art Unit	
	David Montanari	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-34,36-40,42-44,46-48,50-55,57-70,73-75,80,81,83 and 85* is/are pending in the application.

4a) Of the above claim(s) *27-34,36-40,42-44,46-48,50-55,57-70,73-75,80 and 81* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26,83 and 85* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/24/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants arguments and amendments filed on 11/24/2008.

2. Claims 26 and 83 are amended.

3. The previous 35 USC 103(a) rejection is withdrawn in view of Applicant's amendments to the claims. A new 35 USC 103(a) rejection is presented below addressing the new claim limitations.

4. Claims 26, 83 and 85 are examined in the instant application.

Claims 27-34,36-40,42-44,46-48,50-55,57-70,73-75,80 and 81 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/3/2007.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 26, 83 and 85 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Applicants in their amendment filed on 11/24/2008 have amended claim 26 to recite that the claimed method will also treat or increase resistance to a viral infection in an avian subject. Applicants in their arguments have stated that the specification on pg. 33 lines 24-25 teaches that "this invention may be used with any animal species (including humans) having sex steroid driven maturation and an immune system" and thus provides support for the new limitation of "avian subject". Further Applicants cite and provide work by Cooper et al. that teaches that avian species function similar to mammals with regard to thymus function. However this argument is not persuasive and further the specification provides no support in the specification for the term "avian subject". While the specification contemplates any animal that has a sex driven steroid maturation, the "avian subject" of the claimed method is a specific claim limitation and embodiment which the present specification does not provide support for. The specification does provide support for "mammals" as claim 26 is currently amended, however avian subjects are not mammals. If Applicants believes this rejection is in error they are invited to cite line and page number in the specification supporting the newly added claim limitation of "avian subject".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 26, 83 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Musey et al. (1997, N. England J. of Med., Vol. 337, pgs. 1267-1274) and Windmill et al. (1998, Tissue and Cell. Vol. 30. pgs. 104-111) and further evidenced by Mackall et al. (1995, NEJM, Vol. 332(3), pgs. 143-149).

The specification defines naïve T cells as $CD45RA^{+}$ and memory T cells as $CD45RO^{+}$ (see pg. 27 lines 4-6).

Musey et al. teach that in HIV-1 infected patients, cytotoxic T lymphocytes decrease in frequency over time (pg. 1267, col. 2 parag. 1 lines 4-7), that primary infection is typically associated with initially high levels of plasma HIV-1 RNA, and that HIV-1-specific cytotoxic T lymphocytes can appear early, with their emergence maybe coinciding with a decline in viral load (pg. 1267, col. 2 parag. 2 lines 1-6). Musey continues to teach that following HIV-1 infection the immune system mounts a profound cytotoxic T cell response towards the HIV-1 virus which initially controls and reduces the viral infection, however after this first year cytotoxic T cell levels become diminished as the virus mounts an attack on immune cells (pg. 1271 col. 2 parag. 2 bridge pg. 1271 col. 1 parag. 1). Musey concludes that their findings indicate that virus-specific cytotoxic T lymphocytes may contribute to the control of early HIV-1 infection by reducing the viral load and slowing the progression of disease (pg. 1273, col. 1 parag. 3 lines 1-4. Musey et al. do not teach a method of using chemical castration to increase cytotoxic T cells to control HIV infection.

However, at the time of filing it was well known in the art that chemical castration will increase cytotoxic T cells. Windmill et al. teach a method of castrating male SD rats to examine immunohistochemical data on post-castration changes in the thymus, spleen, and lymph nodes

(pg. 105, col. 1 parag. 2, 3 and 5). Windmill continues that the immediate effects following castration are increases in T cells, CD8 cells and B cells and that there is an increase in the ability of lymphocytes to respond to activation (pg. 105, Abstract). Windmill continues to teach that the thymus, particularly before puberty, plays an important role in immunological development but undergoes atrophy with age and that this atrophy is partially related to increased levels of sex hormones in the peripheral blood following puberty (pg. 104. col. 1 lines 3-10). Windmill continues that loss of specific cell types from the thymus with increasing age would obviously impinge upon immune function and that particularly there is a reduction in the T cell maturation process and an alteration in T cell numbers and function (pg. 104, col. 2 parag. 2). Windmill concludes that that castration in male SD rats results in increased thymic mass (pg. 106, Table 1), an enhanced immune response (pg. 111, col. 1 parag. 1 last 5 lines) and increases in thymic CD8 levels. Windmill does not teach a method of treating or increasing resistance to a viral infection in a mammalian subject using chemical castration, wherein said subject has an HIV viral injection.

Mackall et al. teach the ordinary artisan at the time of filing that increased production of naive T cells occurs when the thymus enlarges or rebounds. Mackall teaches that in subjects aged 1 to 24 years of age that are under intensive cytotoxic chemotherapy there was a higher proportion of CD45RA T lymphocytes in patients with thymic enlargement after chemotherapy than in patients without such enlargement (Abstract, col. 2). Mackall continues to teach in Table 1 on pg. 144 that as T cells are reduced because of chemotherapy, however during thymic rebound a change in the ration of naive (CD45RA) vs. memory (CD45RO) occurs with naive T cells becoming the predominant T cell isoform. Thus Mackall teaches the ordinary artisan that as

the thymus enlarges/rebounds due to chemotherapy there is a switch to the production of predominantly naive T cells in the thymus. Further as Windmill teaches above, chemical castration results in an increase in thymus mass, which would corroborate with the teachings of Mackall et al., that when thymus mass is increased or rebounds due to aging or chemotherapy, an increase in naive T cells occurs.

Thus at the time of filing the ordinary artisan would find it *prima facie* obvious to combine the teachings of Musey et al. regarding the need to increase T cell production and bolster the immune response in patients suffering from HIV infection with the teachings of Windmill et al. regarding the ability of chemical castration to rejuvenate the thymus by increasing thymic mass, increasing T cell production and increased activation of lymphocytes that respond to infection. Additional motivation is provided by Musey that by increasing cytotoxic T lymphocytes in HIV infected patients, the viral load can be reduced and slow the progression of the disease.

Additonally, Mackall et al. teach the ordinary artisan that naïve T cell production can be restored and results when there is an increase in thymic mass or when the thymus rebounds. Mackall provides this in teaching that indicators such as an increase in thymic mass or weight also leads to an increase in naïve T cells, which as Windmall teaches above, occurs during chemical castration.

Thus the cited art provides the requisite teachings and motivation to make and use the invention as claimed.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Montanari whose telephone number is (571)272-3108. The examiner can normally be reached on M-Tr 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on 1-571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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